

## APPENDIX

1. An enclosure vent adapted to vent hydrogen gas while controlling release of volatile organic compounds from an enclosure containing transuranic waste to an environment surrounding the enclosure while being resistant to corrosion from corrosive materials including chlorinated solvents, hydrochloric acid and nitric acid, the enclosure vent comprising:

a housing defining a chamber therein having a first opening adapted to communicate with said enclosure and a second opening adapted to communicate with the surrounding environment, the housing being made of a nickel, chromium, molybdenum alloy having a resistance to corrosion from said corrosive elements for at least 200 years;

a filter media disposed in said chamber between the first and second openings for venting hydrogen gas from the container, the filter media being a carbon-to-carbon filter media for providing a hydrogen permeability greater than  $10E-06$  mol/S/mol fraction weight, a removal of 0.45 micron particles exceeding 99.00% at an air flow capacity less than 200 ml/min., at a pressure differential less than 1.0 inch, and

a seal between the filter media and the housing, the seal consisting of direct engagement between the nickel, chromium, molybdenum alloy of the housing and the carbon-to-carbon filter media.

2. The enclosure vent of claim 1 wherein the housing has a radially extending flange portion adapted to overlie the outer surface of the enclosure and an axially extending portion adapted to

pass through the opening in the enclosure, the axially extending portion including a coupling adapted to attach the housing to the enclosure.

3. The enclosure vent of claim 2 wherein the axially extending portion of the housing includes an annular shoulder spaced from the first and second openings thereof within the chamber for preventing axial movement of the filter media through the first opening of the housing and for sealing with the filter media and wherein the enclosure vent further includes a perforated lid having a plurality of openings, the perforated lid being attached to the housing for preventing axial movement of the filter media out of the second opening of the housing while allowing the passage of hydrogen gas therethrough.

4. The enclosure vent of claim 3, wherein the axially extending portion of the housing is cylindrical.

5. The enclosure vent of claim 3, wherein the axially extending portion of the housing is cylindrical and the coupler adapted to attach the housing to the container is a helical thread around the axially extending portion of the housing.

6. The enclosure vent of claim 3, wherein the support arrangement comprises an annular shoulder having a support surface against which the filter media abuts.

7. The enclosure vent of claim 1, wherein the housing includes an axially extending threaded portion and a radially extending flange portion, with the chamber including an annular shoulder therein for supporting and directly sealing with the filter media, the flange portion supporting a perforated lid made of the same alloy as the housing to cover the filter media while the filter media is supported on the annular shoulder.
8. The enclosure vent of claim 7, wherein the flange portion of the housing has a relieved portion around the chamber enclosed by a radially facing axially extending wall that defines a shelf of a selected shape and wherein the lid has a shape complementing the shape of the shelf for having a press fit within the wall to retain the lid in abutment with the shelf to retain the filter media within the chamber.
9. The enclosure vent of claim 8 further including a gasket disposed adjacent the flange portion adapted to seal between the flange portion and the enclosure.
10. The enclosure vent of claim 8 wherein the enclosure is a container having a stainless steel wall and wherein the flange portion of the housing is adapted to be fixed to the lid with a peripheral weld.
11. The enclosure vent of claim 9 wherein the enclosure with which the enclosure vent is adapted to be used is a stainless steel container with a stainless steel lid and wherein the enclosure vent is adapted to be welded to the lid.

12. The enclosure vent of claim 1 wherein the a nickel, chromium, molybdenum alloy of the housing has an average corrosion rate no greater than 2 mils per year when immersed in hydrochloric acid at a concentration of 2.0 to 2.5% by weight and a temperature of 90E; an average corrosion no greater than 2 mil per year when immersed in a solution of nitric acid and 15.8% hydrochloric acid at a concentration of 8.8% by weight and a temperature of 52EC.

13. The enclosure vent of claim 12 wherein the average corrosion rate of the a nickel, chromium, molybdenum for hydrochloric acid is less than 1 mil per year; the average corrosion rate of the alloy for nitric acid is less than 1 mil per year, and the average corrosion rate of the alloy for nitric acid plus 15.8% hydrochloric acid is no greater than 4 mils per year.

14. (Cancelled)

15. <sup>15</sup> The enclosure vent of claim ~~19~~ wherein the enclosure vent includes a perforated lid covering the filter media which is fixed over the chamber by direct contact with the housing.

16. <sup>16</sup> The enclosure vent of claim ~~15~~ wherein the direct contact is a press fit between the lid and housing.

17. <sup>16</sup> The enclosure vent of claim ~~15~~ wherein the direct contact is a weld.

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18. The enclosure vent of claim 1 wherein the enclosure vent is adapted for use with a stainless steel enclosure.

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19. An enclosure vent adapted to vent hydrogen gas while controlling release of volatile organic compounds from an enclosure containing transuranic waste to an environment surrounding the enclosure while being resistant to corrosion from corrosive materials including chlorinated solvents, hydrochloric acid and nitric acid, the enclosure vent comprising:

a housing defining a chamber therein comprising a first opening adapted to communicate with said enclosure and a second opening adapted to communicate with the surrounding environment, the housing being made of a nickel, chromium, molybdenum alloy having a resistance to corrosion from said corrosive elements for at least 200 years, and

a unitary filter media disposed in said chamber between the first and second openings for venting hydrogen gas from the container, the filter media comprising a carbon-to-carbon filter for providing a hydrogen permeability greater than  $10E-06$  mol/S/mol fraction weight, a removal of 0.45 micron particles exceeding 99.00% at an air flow capacity less than 200 ml/min., at a pressure differential less than 1.0 inch, the unitary filter media being sealed with the housing by direct engagement with an annular edge on the housing which engages a bottom surface of the filter media to provide a carbon-to-carbon/nickel, chromium, molybdenum alloy knife edge seal between the filter media and housing.

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~~20.~~ The enclosure vent of claim ~~19~~ wherein the enclosure vent is adapted for use with a stainless steel enclosure.